_05. Given panel tilt and azimuth, be able to estimate daily kWh per kW installed PV using a contour plot like this.
_02. Page 20. Given a subset of the loads shown with daily Wh, use the previous contour plot to determine the kW of solar panels needed to meet the average electrical needs.
_13. Given a graph of the CST decimal hour corresponding to solar noon at Waco, determine for a given DOY the Hour:Minute of solar noon.
_17. Slide 1. Understand how the 1.4 kW average electric power per person calculation is made.
_17. Slides 5 and 6. Know which generation fuel type is most important in ERCOT in providing power for summer days, and for winter days.
_18. Slide 4. Know what the Betz Limit is, and that it is reached when downstream wind speed is slowed to one-third upstream wind speed. Know that tip speed for a modern turbine is approximately 6 times upstream wind speed.
_18. Slide 5. Know concept that max power for any wind condition is drawn from a wind turbine when turbine speed varies in proportion to wind speed.
_19, Slides 15 and 17. Power in the wind equation, and air density. Power varies by the cube of wind speed. Air density is 1.225 kg/cubic meter at STP.
_16. Notes and problems on engineering economics

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Conversion Factors

- 1609 meters/mile
- 39.37 inches/meter
- 3.281 feet/meter
- 10 m/s = 22.4 mph
- 8760 hours/year
- 1 KWh = 3412 BTU

- 1 sheet of Notes
- Pencil, calculator, ruler
- Office Hours
  - Tues 1-3
  - Wed (this week) 3-5